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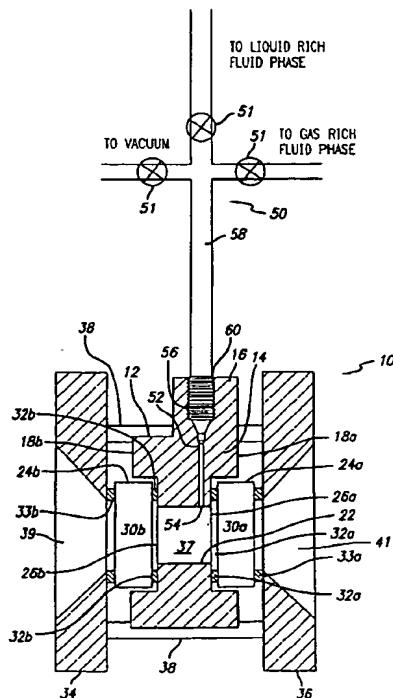
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(54) Title: MICROREACTOR WITH CONTROLLABLE PRESSURE AND TEMPERATURE FOR *IN SITU* MATERIAL INVESTIGATIONS



(57) Abstract: A microreactor (10) for investigation of material reactions and properties includes a core body (12) defining a chamber (22) adapted to contain one or more sample materials and having a fluid passageway (52) from the chamber to the exterior of the core body. The chamber is in fluid communication with an external manifold (50) whereby gases, liquids or fluids can be injected and their activities can be controlled externally from ambient conditions to 400 degrees Celsius and 4,500 psi. Transparent windows (30a, 30b) in the core body permit continuous visual access to the chamber, allow direct probe beam interaction with sample during a reaction or observation, and external detection of the probe beam to investigate *in situ* reaction processes.

10/523 233

WO 2004/011145 A1



Declarations under Rule 4.17:

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